

12.0 CONCLUSIONS

12.1 Suitability of the Florida Keys Carrying Capacity Impact Analysis Model

This report documents the results of two test runs of the Florida Keys CCIAM. The test results suggest that the structure and processes of the CCIAM are appropriate to meet the objectives of the study and can be used as an impact assessment tool to support regional land use policy decisions. It also provides a framework to evaluate carrying capacity issues in the Florida Keys.

The test showed that the model effectively accepts complex scenario choices, converts them into a modified land use pattern, queries multiple databases, performs necessary calculations, and produces outputs in tabular, graphic, and map forms.

The FKCCS has resulted in the identification, acquisition, assimilation and application of ecological, socioeconomic, fiscal, and infrastructure data regarding the Florida Keys. The CCIAM is the mechanical portion of the FKCCS. The use of the model and the careful interpretation of results will provide State and local planners with a comprehensive body of data, available through the Internet, and a simple but powerful technical tool to explore the potential consequences of land development activities in the Florida Keys.

The test met its main purpose: to help check if the model executed all the analytical functions and identify areas for refinement. The NRC's independent review as well as the input obtained from other stakeholders greatly benefited the study and the model.

The CCIAM provides a solid foundation to continue to strengthen the body of knowledge available to land use managers in the Florida Keys.

12.2 Preliminary Carrying Capacity Assessment

This report discusses the technical basis of the FKCCS and its main technical product, the CCIAM. The study and the model make best use of available, yet limited, data. Consequently, a comprehensive assessment of carrying capacity proved to be beyond the capabilities of the model (see Sections 3 to 10). Many of the limitations identified in the NAS review and other stakeholders' comments have been already addressed and updates to the computer program continue. Despite its limitations, the study and the results of the test scenarios provide a preliminary assessment of the carrying capacity of the Florida Keys:

First, since the 1800s, development has severely reduced the extent of upland habitats and created a matrix of numerous small patches. Over 80 percent of all remaining upland patches are less than 13 acres, which compromises ecological functions, limits biodiversity, and affects threatened and endangered species habitat. Small patches are continuously affected by indirect secondary impacts, further degrading their ecological functions. Any further loss of upland habitats will only exacerbate this situation. Development in the Florida Keys has surpassed the carrying capacity of upland habitats to maintain their ecological integrity.

Second, the endangered Lower Keys marsh rabbit, silver rice rat, and the Stock Island tree snail occur in very small, fragmented populations. Any further habitat losses would place these species in jeopardy. Development in the Florida Keys has surpassed the carrying capacity of these species.

Third, hurricane evacuation clearance time is already over the mandated limit of 24 hours. Further development without measures to expedite evacuation, either structural or non-structural, will place the Florida Keys further out of compliance with the mandated clearance time. Development in the Florida Keys has surpassed the carrying capacity of hurricane evacuation clearance time.

Fourth, housing affordability for permanent residents in the Florida Keys is low. There is a disproportion between the median income of permanent residents and the median price of housing. While not a carrying capacity indicator, low housing affordability is an important socioeconomic concern.

Fifth, government expenditures per capita will increase, even in the absence of new development, if commitments made by government, such as the implementation of the wastewater and stormwater master plans, are carried out. An increase in per capita government expenditures will increase pressure for increasing taxes on residents, visitors, and tourists.

Finally, LOS on U.S. 1 continues to hover near the minimum required. LOS in Big Pine may improve if proposals currently under consideration in the ongoing Habitat Conservation Plan for Big Pine and No Name Keys are approved and implemented.

Further scenario analysis will likely reinforce these findings.

Computer programming continues in order to incorporate refinements to the CCIAM discussed in this report. To complete the study, the analysis of several scenarios will provide an assessment of the effects of “additional land development activities” on carrying capacity indicators in the Florida Keys. The preliminary analysis discussed in this test model report show that the carrying capacity of at least some environmental elements have already been surpassed. Therefore, additional scenarios will explore options that prevent further impact, improve current conditions, or both.

The final report for the Florida Keys Carrying Capacity Study, due out in early summer 2002, will integrate all data assimilated in the study and the results of model runs into a comprehensive assessment of carrying capacity issues in the Florida Keys.